# THE REMOVAL OF TOXIC SULFUR COMPOUNDS FROM OIL STOCK

**V.V. Smirnov, I.G. Tarkhanova, M.G. Gantman, L.A. Tyurina**

*Lomonosov Moscow State University, Moscow, Russia*

*mike_gantman@mail.ru*

Oil stock cleaning from sulfurcontaining compounds, in particular from thiols, is an important process in modern oil refining. Along with hydrofinig another method of thiol removal – oxidative demercaptanization – the catalytic oxydation of thiols with the formation non-toxic and odorless disulfides – spreaded widely. We developed cheap and easily produced catalysts, capable of catalysing thiol oxidation with air oxygen in the absence of alkali. Catalysts can be used both as a solution and as a solid. Purification efficiency is very high: the product, containing 0,02 mas. % of thiol sulfur, after single pass through the reactor either doesn't contain it at all, or contains less than 0,001%, that responds the most strict requirements.

The feature of the catalytic compositions is simultaneous prescence of active transition metal complex and the excess of donor ligand, capable of interaction with substrate on different stages of radical processes in catalytic system.

The simultaneous use of metal complex and ligand permits to design both homo- and heterogenous catalytic systems. At that due to covalent bonding of ligand's functional groups with mineral support the stability of catalytic compositions increases greatly.

Polyfunctional ligands, perspective for the formation of active copper containing catalysts for divalent sulfur compounds oxidation, are revealed. The ligands, that display reduction properties (aromatic amines, aminoalcohols) or on the contrary oxidative properties (dimethylsulfoxide) with respect to metal ion turned out to be the most active. The high catalytic activity of the mentioned systems is conditioned on the participation of organic component of the catalyst in redox reactions, that lead to the formation of active particles of radical nature.